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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/075,218

02/14/2002

Thomas S. Kobayashi

SC11931TP

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7590

07/06/2006

FREESCALE SEMICONDUCTOR, INC.
LAW DEPARTMENT
7700 WEST PARMER LANE MD:TX32/PL02
AUSTIN, TX 78729

EXAMINER

FARAHANI, DANA

ART UNIT

PAPER NUMBER

2891

DATE MAILED: 07/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,218

Applicant(s)

KOBAYASHI ET AL.

Examiner

Dana Farahani

Art Unit

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-18 and 20-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-18 and 20-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In view of the appeal brief filed on 3/8/04, PROSECUTION IS HEREBY REOPENED.

New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 8, 9, 11, 12, 17, 18, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent 6,222,212), hereinafter Lee, in view of Nagarajan et al., hereinafter Nagarajan (US Patent 6,519,844).

Regarding claims 1, 11, 9, 18 and 21-22, Lee discloses in figure 8A a semiconductor device comprising a substrate 803 having circuitry 811 and 812 formed in; a passivation layer

804 formed overlying at least a portion of the substrate; and a fuse 813 formed overlying the passivation layer.

Lee does not disclose a packaging material selected from the group consisting of a mold compound and an under fill is over the fuse.

Nagarajan discloses in figure 1D, a mold compound 24 is over a chip 16. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to form a mold over the chip 802 of the Lee's structure in order to add to the mechanical and chemical strength of the fuse package (see Nagarajan, column 3, lines 38-40).

Regarding claims 2, 12, and 17, recessed areas, as shown in the figure, is formed in the passivation layer, and portion of the fuse (connectors 805 and 808) are in the recess areas.

Regarding claim 8, interconnects 805 and 808 are connecting a first and a second portion of the fuse to the circuits.

Regarding claim 20, see column 9, lines 51-67; and column 10, lines 1-6.

4. Claims 3-7 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Nagarajan, as applied to claims 1 and 11 above, and further in view of Weber et al., hereinafter Weber (US Patent 6,218,279).

Regarding claims 3-6 and 13-16, Lee in view of Nagarajan renders obvious the claimed invention, as discussed above, except for expressly disclosing the fuse comprises aluminum and a metal nitride.

Weber discloses a fuse wherein it comprises titanium nitride and aluminum (see column 2, lines 24-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the fuse of the Weber reference in order to benefit from the novel

properties of the fuse such as adjustable resistance and easy manufacturing (see column 2, lines 7-12).

Regarding claim 7, Lee in view of Nagarajan and Weber renders obvious the claimed invention, as discussed above, except for expressly stating that the metal having a thickness less than approximately 1 micron.

Weber, however, discloses that the fuse in that reference reduces the thickness of the prior art fuses, which have thickness of 0.5 micron (see column 4, lines 23-24). Noting that the thickness of the metal layer 106 in the fuse shown in figures 9 and 10 is only a small portion of the fuse, its length is less than approximately 1 micron.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Farahani whose telephone number is (571)272-1706. The examiner can normally be reached on M-F 9:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571)272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

D. Farahani



B. WILLIAM BAUMEISTER
SUPERVISORY PATENT EXAMINER